



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/526,466

03/03/2005

Tadashi Shibata

Q86580

8164

23373 7590 05/16/2008
SUGHRUE MION, PLLC
2100 PENNSYLVANIA AVENUE, N.W.
SUITE 800
WASHINGTON, DC 20037

EXAMINER

MAKI, STEVEN D

ART UNIT

PAPER NUMBER

1791

MAIL DATE

DELIVERY MODE

05/16/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/526,466	Applicant(s) SHIBATA ET AL.	
	Examiner Steven D. Maki	Art Unit 1791	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 February 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3-13 and 15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 3-13 and 15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Art Unit: 1791

1) The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2) **Claims 1 and 3-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Europe 561 (EP 1179561) in view of Shiina (US 2002/0049294) and optionally Europe 613 (EP 738613).**

Europe 561 discloses a pneumatic tire having a composition comprising 100 parts rubber such as natural rubber or styrene-butadiene rubber (SBR), reinforcing filler such as **silica** and carbon black (e.g. HAF, ISAF and SAF), and 0.1-10 parts ester of (i) aliphatic polyvalent carboxylic acid or anhydride thereof such as the preferred maleic anhydride and (iii) (poly)oxyalkylene derivative. The ester is represented by the formula described at paragraphs 14-16. The slippage between rubber molecules is increased by using the ester as an additive in the rubber composition without degrading the properties of the cured rubber composition. The silica has a N2SA of 50-250 m²/g. Other additives such as processing oil may be included in the composition. At paragraph 55, Europe 561 describes using 100 parts natural rubber and 55 parts carbon black HAF. At paragraph 59, Europe 59 describes using 100 parts SBR, 30 parts carbon black ISAF and 30 parts silica. Europe 561 specifically discloses using the composition for a tire tread.

Parts (a), (b) and (c) of claim 1 do not appear to distinguish over Europe 561. In any event, it would have been obvious to one of ordinary skill in the art to provide

Art Unit: 1791

Europe 561's tire such that the tread rubber comprises 100 parts rubber component comprising conjugated diene rubber, filler comprising 10% mass or more of silica based on the whole fillers wherein the silica has a N2SA of 180-270 m²/g and 0.1-10 mass parts of a partial ester compound of maleic anhydride and a (poly)oxypropylene derivative since (1) Europe 561 teaches a pneumatic tire having a composition comprising 100 parts rubber such as natural rubber or styrene-butadiene rubber (SBR), reinforcing filler such as silica and carbon black (e.g. HAF, ISAF and SAF), and 0.1-10 parts ester of (i) aliphatic polyvalent carboxylic acid or anhydride thereof such as the preferred maleic anhydride and (iii) (poly)oxyalkylene derivative (paragraphs 14-16) so that the slippage between rubber molecules is increased by using the ester as an additive in the rubber composition without degrading the properties of the cured rubber composition, (2) Europe 561 teaches using the rubber composition for the tread of the tire and suggests using silica having a N2SA of 50-250 m²/g and optionally (2) Shiina and/or Europe 613 suggest using a rubber composition comprising silica in a tread of tire so that heat generation is reduced. As to silica, Shiini teaches using 30 parts silica or less in the tire tread wherein the silica has a N2SA of 160-260 m²/g. As to silica, Europe 613 suggests using 20-95 parts silica in the cap of the tire tread.

Furthermore, it would have been obvious to use the claimed hydrazide compound as set forth in claims 1 and 3 in the rubber composition since Shiina teaches using hydrazide compound in the tire tread to suppress the decrease in modulus due to reversion under over-cure and deterioration in the low heat generating property and abrasion resistance (paragraphs 48-165, especially paragraphs 65, 164 and 165).

As to claim 4, note Europe 561's and the optionally Shiina and/or Europe 613's teaching to use natural rubber.

As to claims 5-6 and 13-14, note Europe 561's and optionally Shiina and/or Europe 613's teachings as to types and amounts of silica and carbon black.

As to claims 7-9, Europe 561 teaches using the composition for a tire tread, the optional Shiina and/or Europe 613 teach a heavy duty / truck tire tread and the optional Europe 613 teaches using a cap/base construction for the tread.

As to claim 11, see paragraphs 14-16 of Europe 561.

As to claim 12, note Europe 561's and the optionally Shiina and/or Europe 613's teaching to use SBR.

3) Claims 10-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Europe 561 (EP 1179561) in view of Hayashi et al (US 3,927,144) and optionally further in view of Shiina (US 2002/0049294) and/or Europe 613 (EP 738613).

Europe 561 discloses a pneumatic tire having a composition comprising 100 parts rubber such as natural rubber or styrene-butadiene rubber (SBR), reinforcing filler such as **silica** and carbon black (e.g. HAF, ISAF and SAF), and 0.1-10 parts **ester of (i) aliphatic polyvalent carboxylic acid or anhydride thereof such as the preferred maleic anhydride and (iii) (poly)oxyalkylene derivative**. The ester is represented by the formula described at paragraphs 14-16. The slippage between rubber molecules is increased by using the ester as an additive in the rubber composition without degrading the properties of the cured rubber composition. The silica has a N2SA of 50-250 m2/g.

Art Unit: 1791

Other additives such as processing oil may be included in the composition. At paragraph 55, Europe 561 describes using 100 parts natural rubber and 55 parts carbon black HAF. At paragraph 59, Europe 59 describes using 100 parts SBR, 30 parts carbon black ISAF and 30 parts silica. Europe 561 specifically discloses using the composition for a tire tread.

Parts (A), (B) and (C) of claim 10 do not appear to distinguish over Europe 561. In any event, it would have been obvious to one of ordinary skill in the art to provide Europe 561's tire such that the tread rubber comprises 100 parts rubber component comprising conjugated diene rubber, filler comprising 10% mass or more of silica based on the whole fillers wherein the silica has a N2SA of 180-270 m²/g and 0.1-10 mass parts of a partial ester compound of maleic anhydride and a (poly)oxypropylene derivative since (1) Europe 561 teaches a pneumatic tire having a composition comprising 100 parts rubber such as natural rubber or styrene-butadiene rubber (SBR), reinforcing filler such as silica and carbon black (e.g. HAF, ISAF and SAF), and 0.1-10 parts ester of (i) aliphatic polyvalent carboxylic acid or anhydride thereof such as the preferred maleic anhydride and (iii) (poly)oxyalkylene derivative (paragraphs 14-16) so that the slippage between rubber molecules is increased by using the ester as an additive in the rubber composition without degrading the properties of the cured rubber composition, (2) Europe 561 teaches using the rubber composition for the tread of the tire and suggests using silica having a N2SA of 50-250 m²/g and optionally (2) Shiina and/or Europe 613 suggest using a rubber composition comprising silica in a tread of tire so that heat generation is reduced. As to silica, Shiina teaches using 30 parts silica

or less in the tire tread wherein the silica has a N2SA of 160-260 m²/g. As to silica, Europe 613 suggests using 20-95 parts silica in the cap of the tire tread.

Furthermore, it would have been obvious to one of ordinary skill in the art to include the claimed petroleum base resin in Europe 561's rubber composition since (1) Europe 561 teaches that other additives such as processing oil (softening agent) may be included in the rubber composition and (2) Hayashi et al suggests using a petroleum resin having a softening point of 8-150 degrees C in a rubber composition for a tread of a large truck tire to improve cut resistance.

As to claim 11, see paragraphs 14-16 of Europe 561.

As to claim 12, note Europe 561's and the optionally Shiina and/or Europe 613's teaching to use SBR.

4) Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Europe 561 in view of Hayashi et al and optionally further in view of Shiina (US 2002/0049294) and/or Europe 613 (EP 738613) as applied above and further in view of Hashimoto (US 6,103,808).

As to claim 15, it would have been obvious to one of ordinary skill in the art to include the claimed softening agent in Europe 561's rubber composition since (1) Europe 561 teaches that other additives such as processing oil (softening agent) may be included in the rubber composition and (2) Hashimoto, directed to safety concerns as to using oil as softening agent, suggests using a oil having a DMSO extract less than 3% by weight for tire rubber compositions.

Remarks

5) Applicant's arguments filed 2-4-08 have been fully considered but they are not persuasive.

With respect to claim 1, applicant argues that the object and effect of Europe 561 and Shiina are completely different and there would be no reason to combine Europe 561 and Shiina. This argument is not persuasive since Europe 561 and Shiina are directed to the same field of endeavor of tire treads. Both Europe 561 and Shiina teach incorporating silica in the tire tread. Shiina motivates one of ordinary skill in the art to use the claimed hydrazide in Europe 561's silica reinforced tire tread to obtain the expected and predicted benefit of suppressing decrease in modulus due to reversion under over-cure and deterioration in low heat generating property and abrasion resistance.

With respect to claim 10, applicant argues that there is no relation between the object and effects of Europe 561 and Hayashi. This argument is not persuasive since Europe 561 and Hayashi are directed to the same field of endeavor of tire treads. Both Europe 561 and Hayashi teach incorporating "additives" in the tire tread. Hayashi et al motivates one of ordinary skill in the art to use the claimed additive (petroleum resin) in Europe 561's tire tread to obtain the expected and predicted benefit of improving cut resistance of the tire tread.

6) No claim is allowed.

7) **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

Art Unit: 1791

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

8) Any inquiry concerning this communication or earlier communications from the examiner should be directed to Steven D. Maki whose telephone number is (571) 272-1221. The examiner can normally be reached on Mon. - Fri. 8:30 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Crispino can be reached on (571) 272-1226. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Steven D. Maki/
Primary Examiner, Art Unit 1791

Steven D. Maki
May 12, 2008